

Figure 1

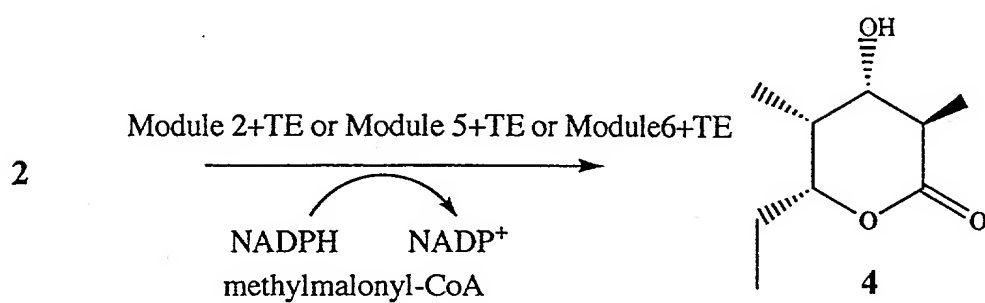
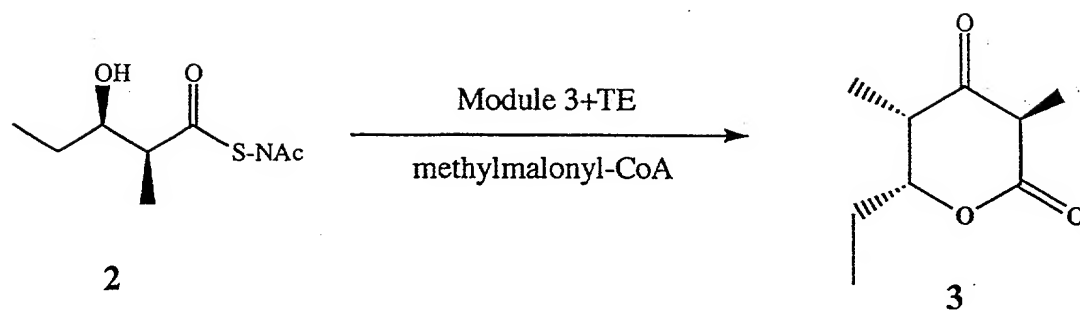


Figure 2

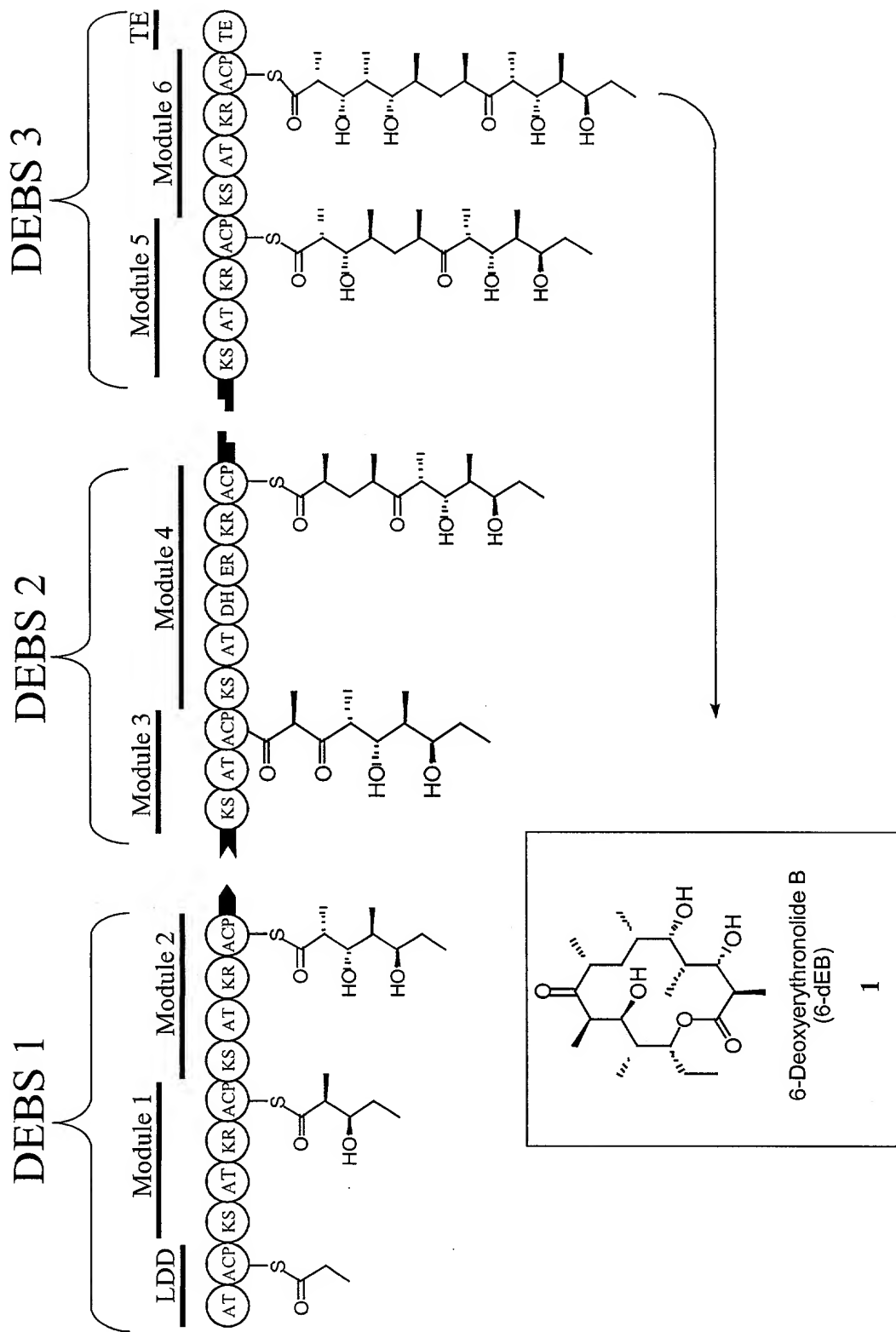
(a) INTRA-POLYPEPTIDE LINKER

M2ery: GGATGAEQAAPATT..APVD  
M4ery: VGDAD..QAA.VRVVGAA.DES  
M6ery: VGAAEAEQA.PALVREVPKDDAD  
M2rif: FGSA.A.NR.PAEIGTAAAE  
M3rif: LG..ER.PAAPAPVTRDVSD  
M5rif: GETVAGAPATPVTTVADAG  
M3rap: .ELFTGENPAPVRGPVSAVGQD  
M4rap: .ELFTGENPAPVRGPVSVVGQD  
M7rap: .ELFTGENPAPVRGPVSA.GQD

(b) N-TERMINAL INTER-POLYPEPTIDE LINKER

M3ery: .....VTD SE KVAEYLRR .ATL DLRAAR QRIRE..LES  
M5ery: MSGDNGM.TE E.KLRRYLKR TVT.ELDSVT ARLRE..VEH RAG  
M4rif: .....MSAPNE QIVDAL.R ASLKE....N VRLQQENSAL AAAAA  
M7rif: .....VSASYE KVVEAL.R KSLEE....V GTLKKRNRQL ADAAG  
M8rif: .....V.AD EGQLRDYLKR .AIADARDAR TRLRE..VEE QAR  
M9rif: .....MATD E.KLLKYLKR .VTAE LHS.. ..LRKQGARH .AD  
M5rap: .....MR.. EDQLLDAL.R KSVKE....N ARLRKANTSL RAAMD  
M11rap: .....M.PEQD KVVEYL.R WATAELHTTR AKL.....EA LAAANT

Figure 3



### Figure 4

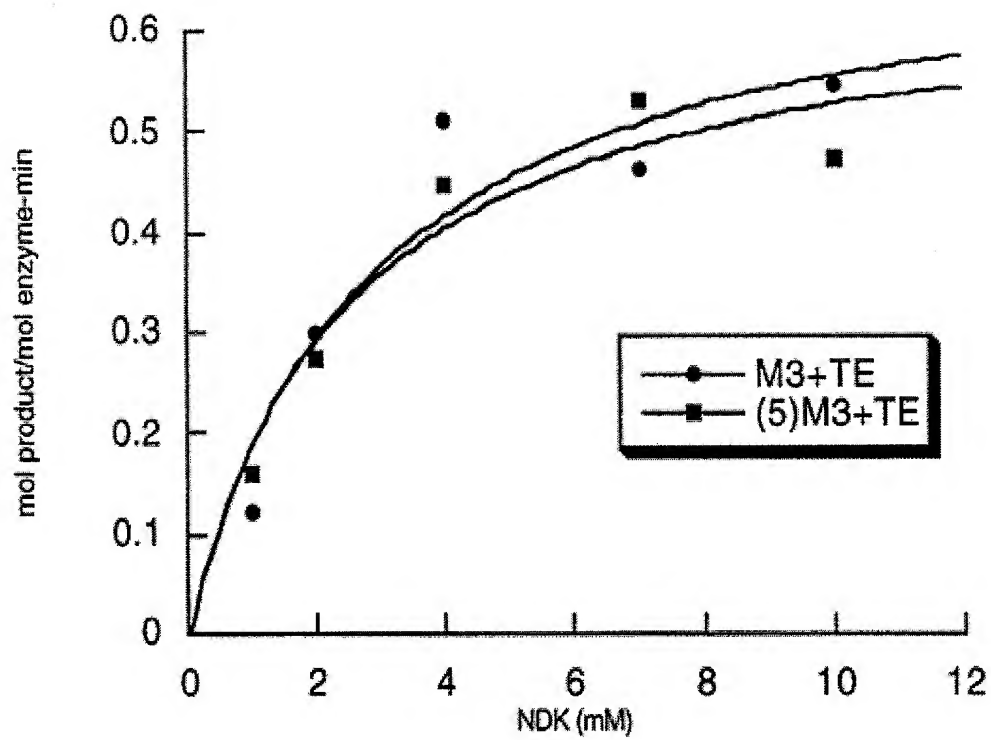
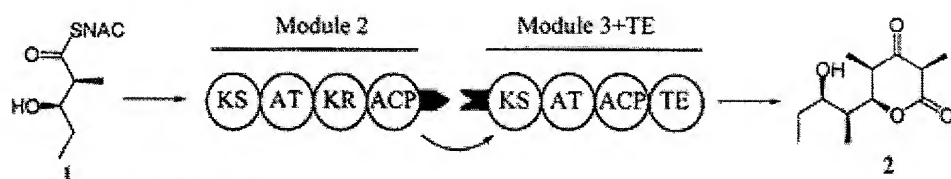
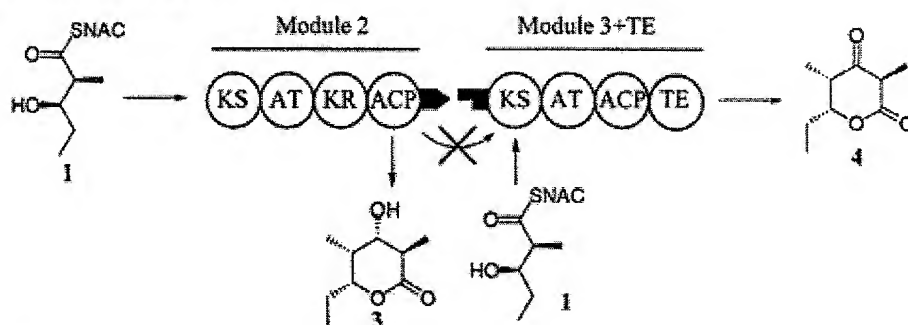


Figure 5

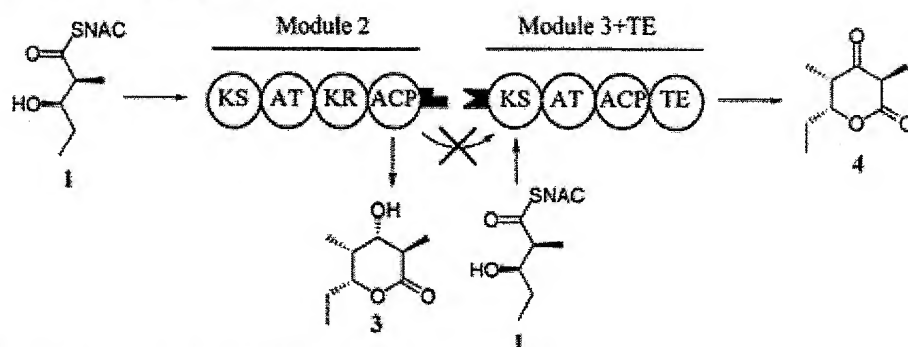
**A. M2 and M3+TE**



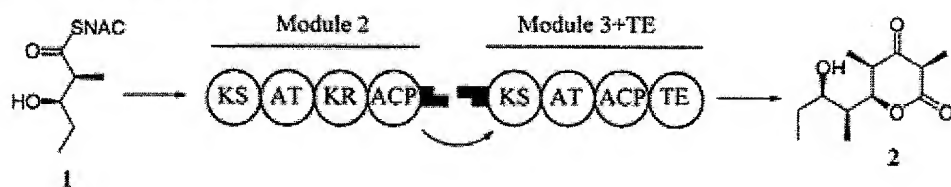
**B. M2 and (5)M3+TE**



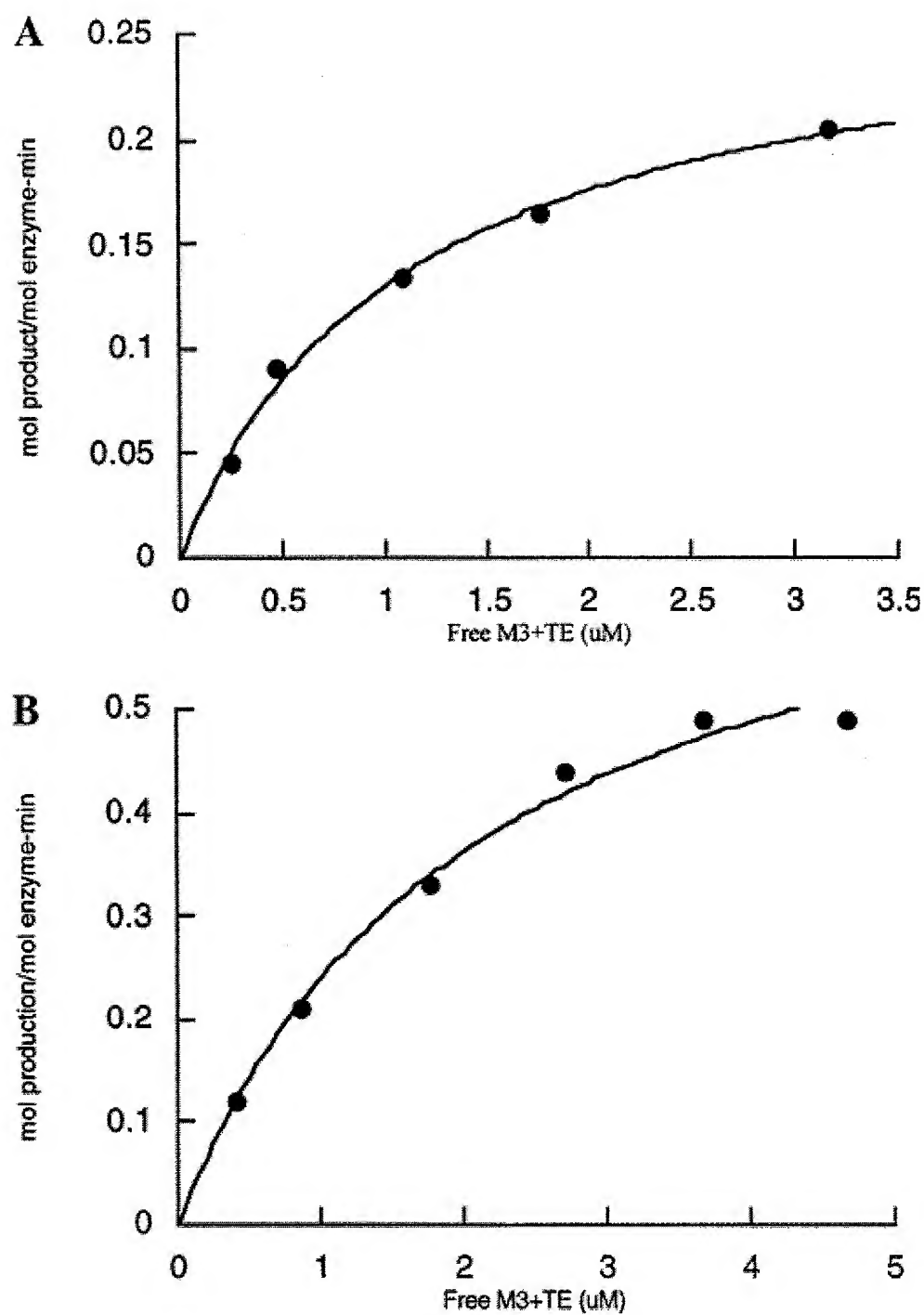
**C. M2(4) and M3+TE**



**D. M2(4) and (5)M3+TE**



**Figure 6**



**Figure 7**

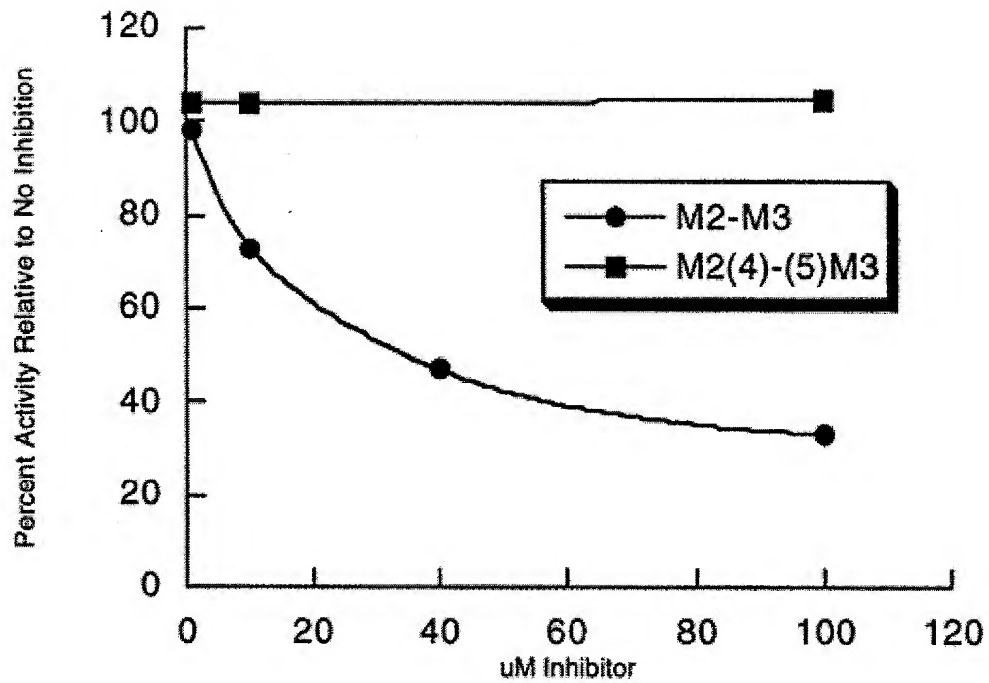


Figure 8



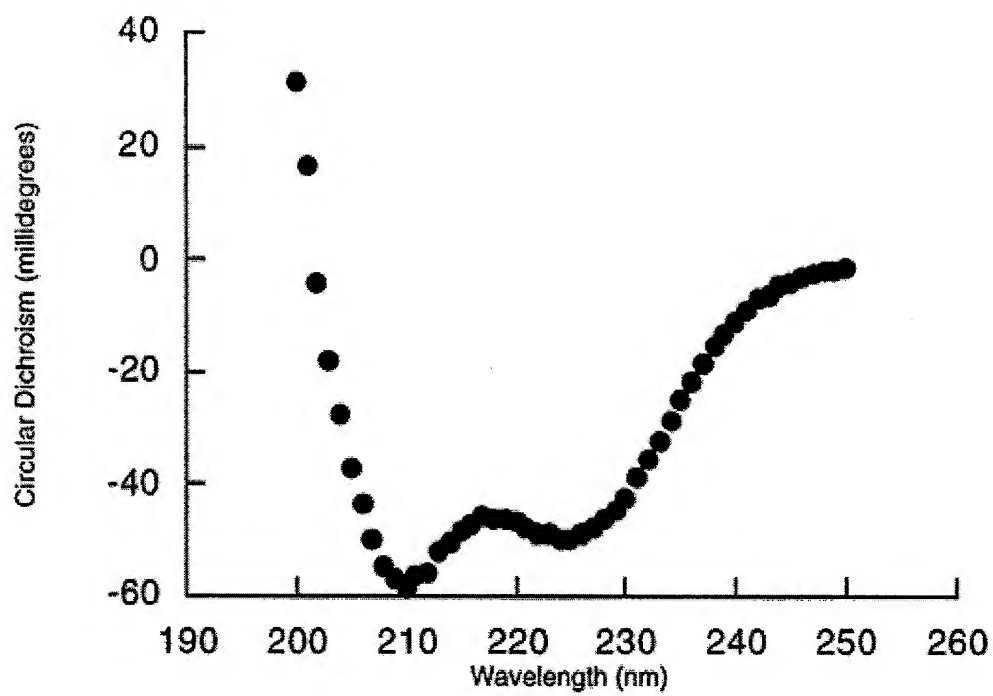
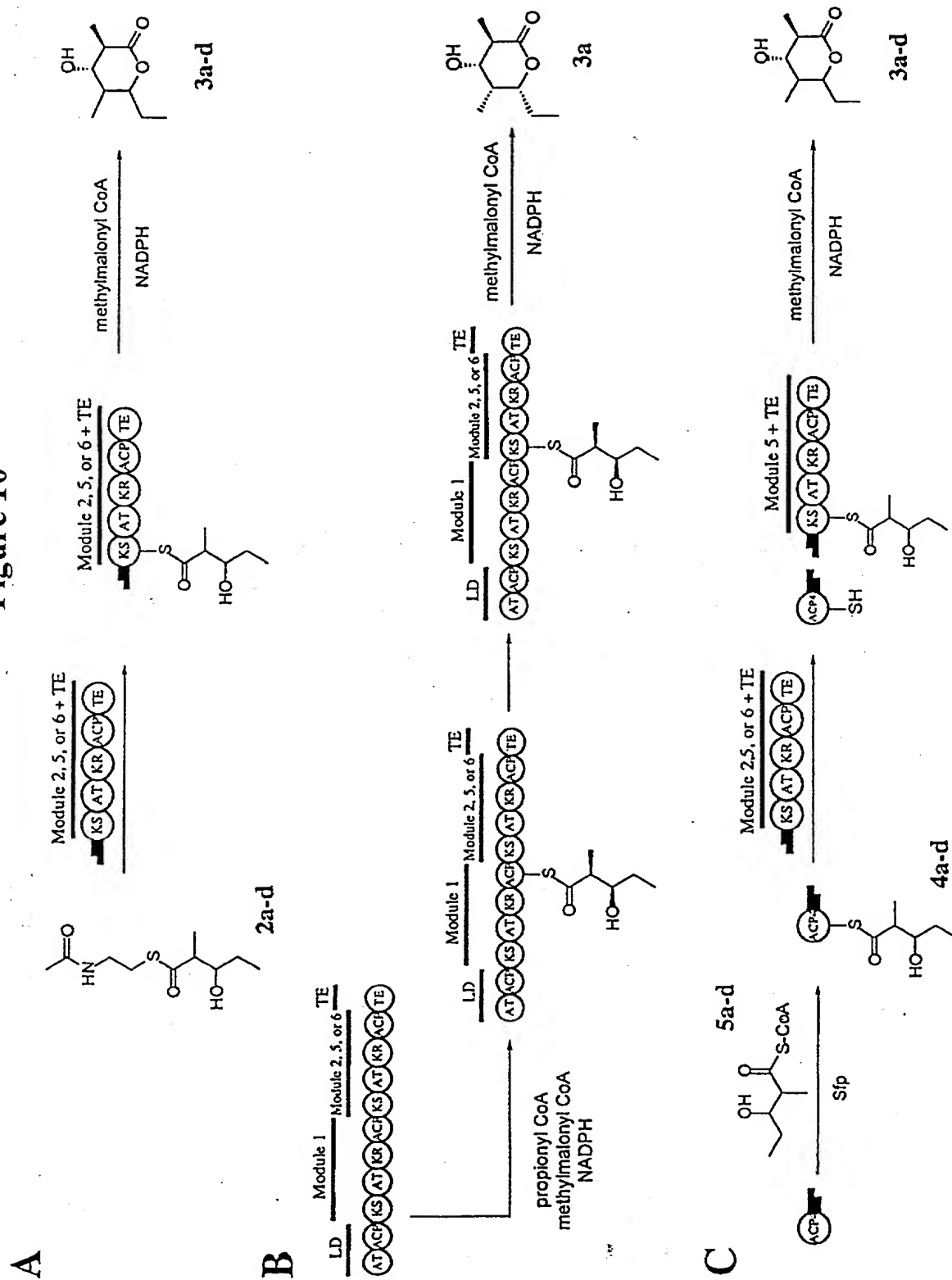
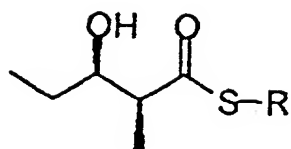


Figure 9

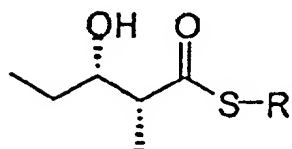
Figure 10





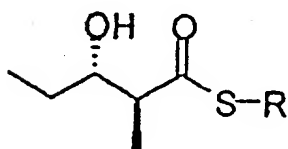
**2a:** R=N-acetylcysteamine

**4a:** R=Acyl carrier protein



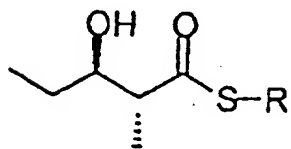
**2b:** R=N-acetylcysteamine

**4b:** R=Acyl carrier protein



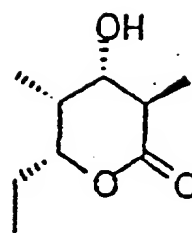
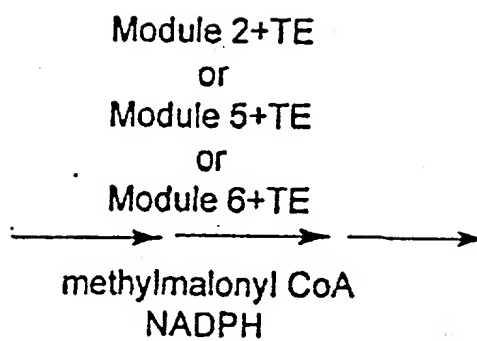
**2c:** R=N-acetylcysteamine

**4c:** R=Acyl carrier protein

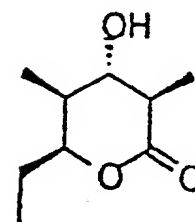


**2d:** R=N-acetylcysteamine

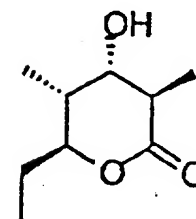
**4d:** R=Acyl carrier protein



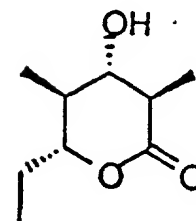
**3a**



**3b**



**3c**



**3d**

**Figure 11**

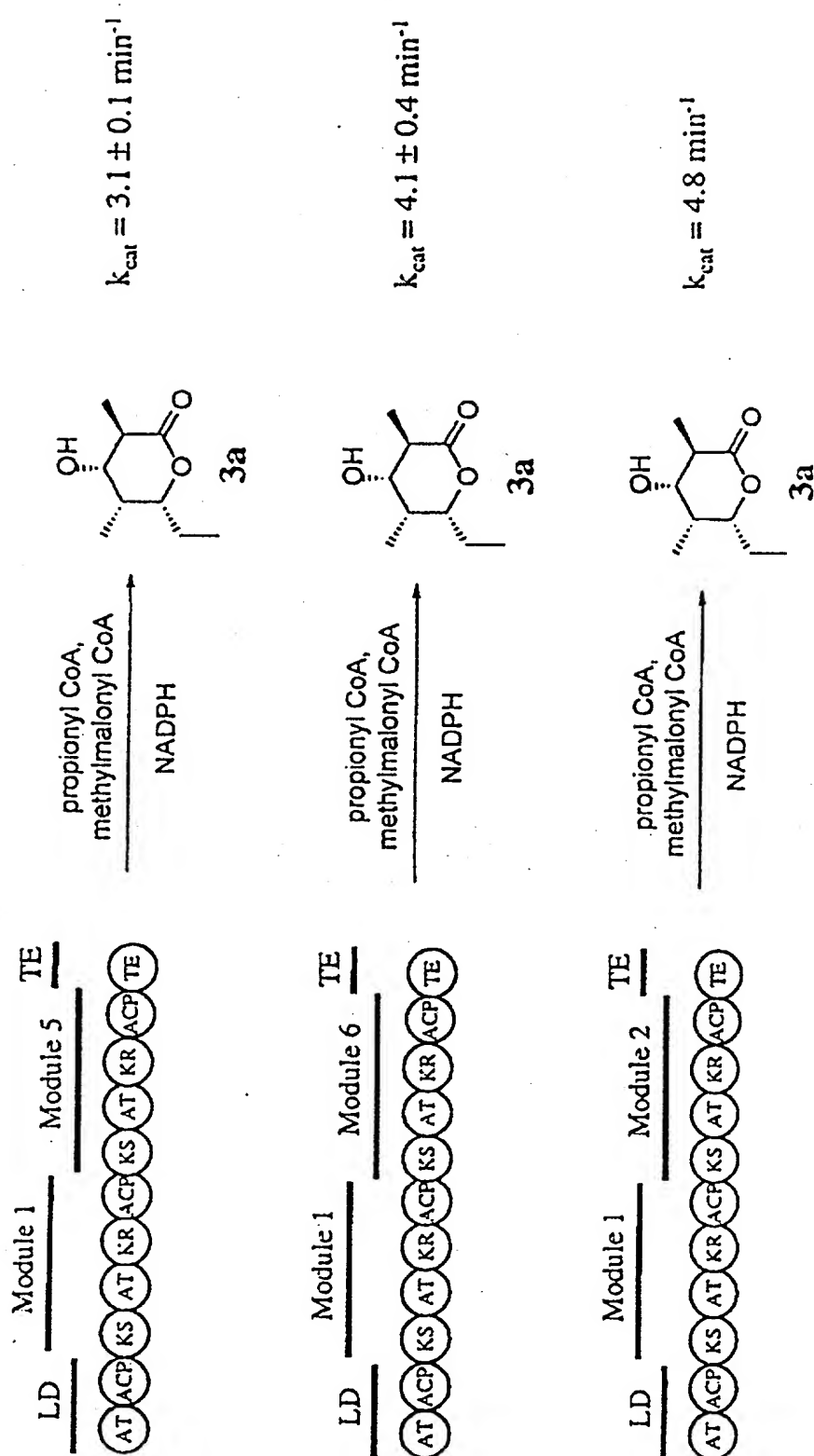


Figure 12




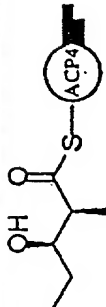
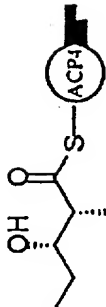
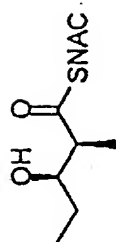
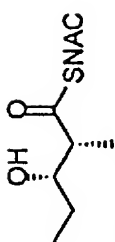
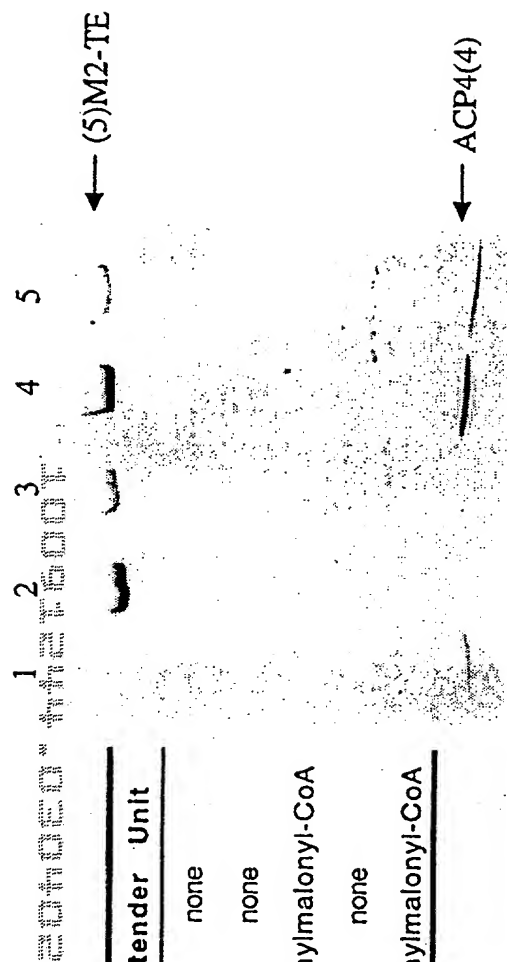
Substrate	(5)Module 2 + TE	(5)Module 5 + TE	(5)Module 6 + TE
			
4a 	2900 ± 500	290 ± 50	340 ± 60
4b 	18 ± 1	3.9 ± 0.7	85 ± 15
2a 	0.75 ± 0.01	0.016 ± 0.002	1.1 ± 0.1
2b 	0.0076 ± 0.0006	0.0011 ± 0.0001	0.058 ± 0.006

Figure 13





Lane	ACP	Module	<sup>14</sup> C-Label	Extender	Unit
1	holo-ACP4(4)	none	* 2 a	none	
2	none	(5)M2+TE	* 2 a	none	
3	none	(5)M2+TE	* 2 a	methylmalonyl-CoA	
4	holo-ACP4(4)	(5)M2+TE	* 2 a	none	
5	holo-ACP4(4)	(5)M2+TE	* 2 a	methylmalonyl-CoA	

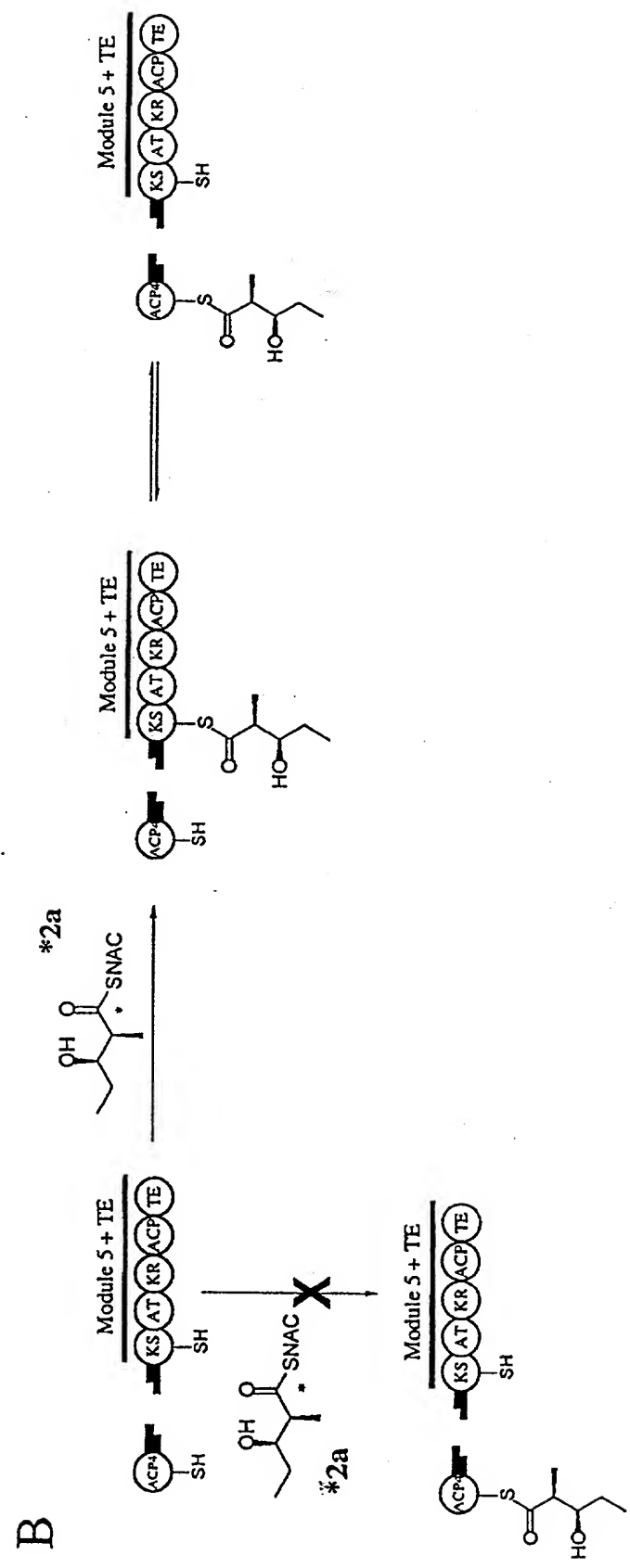


Figure 15

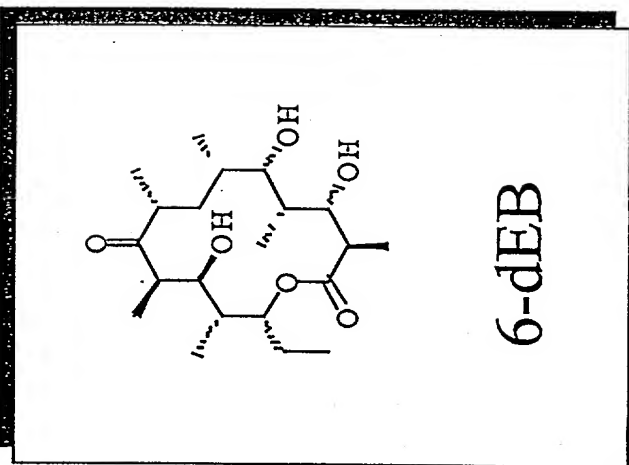
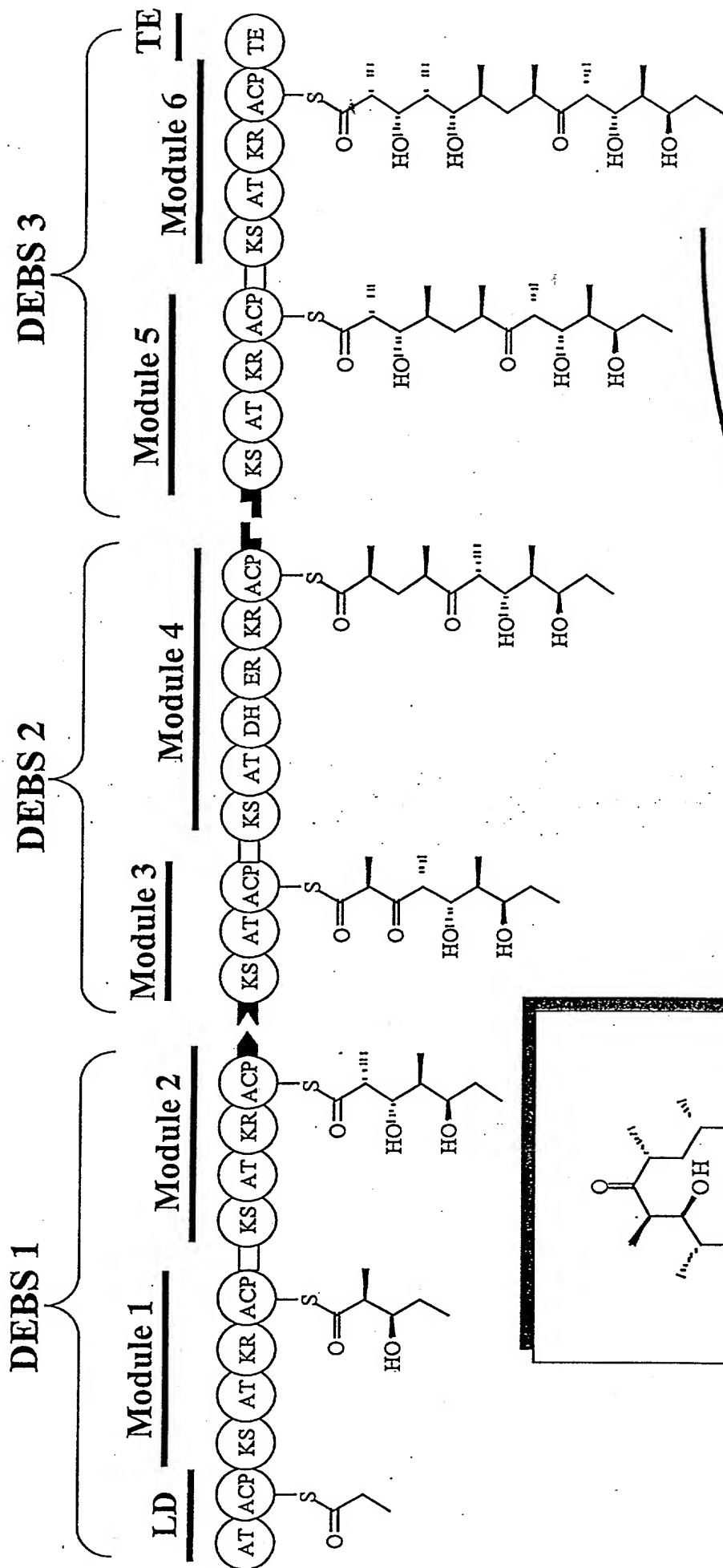


Figure 16



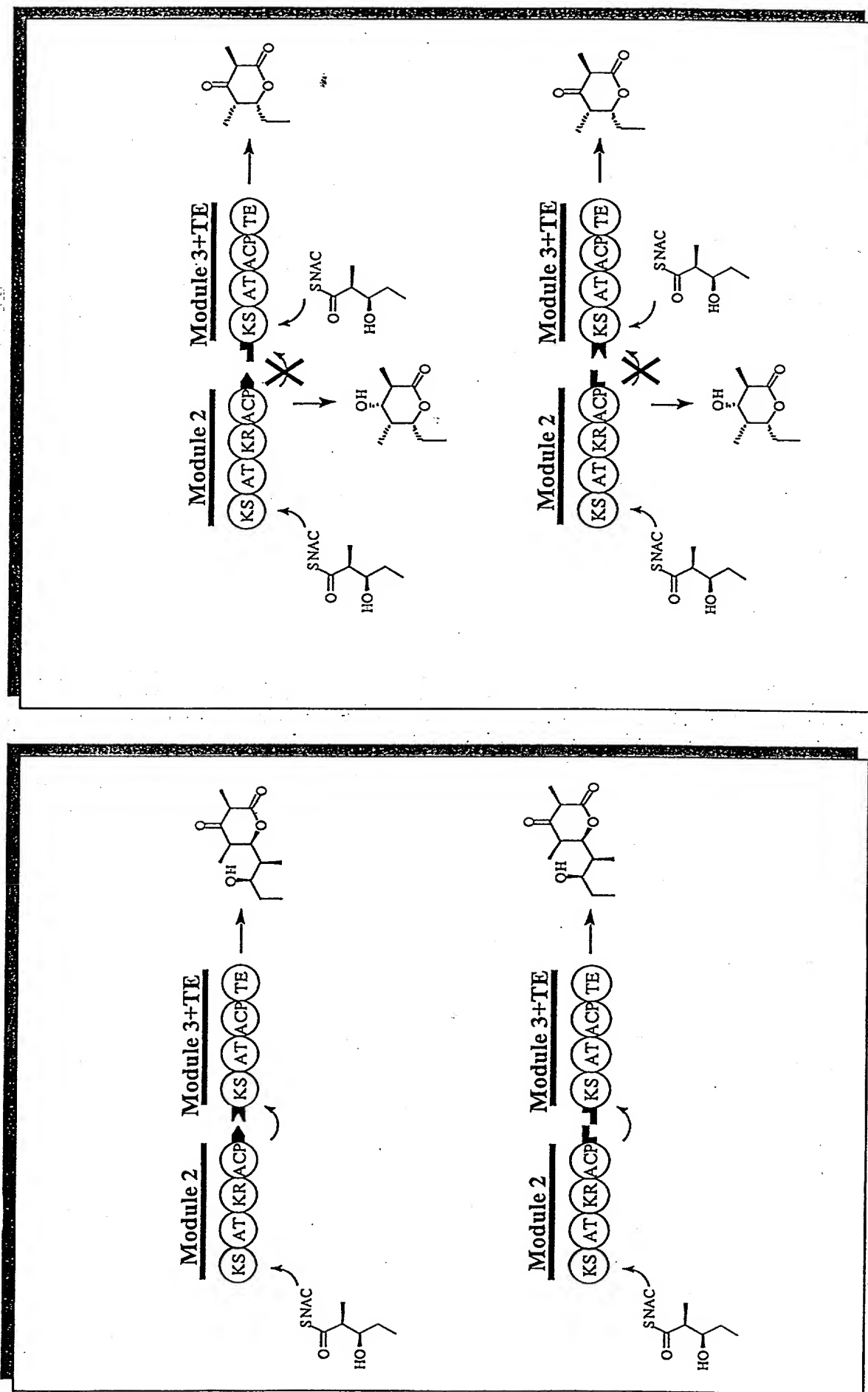


Figure 17

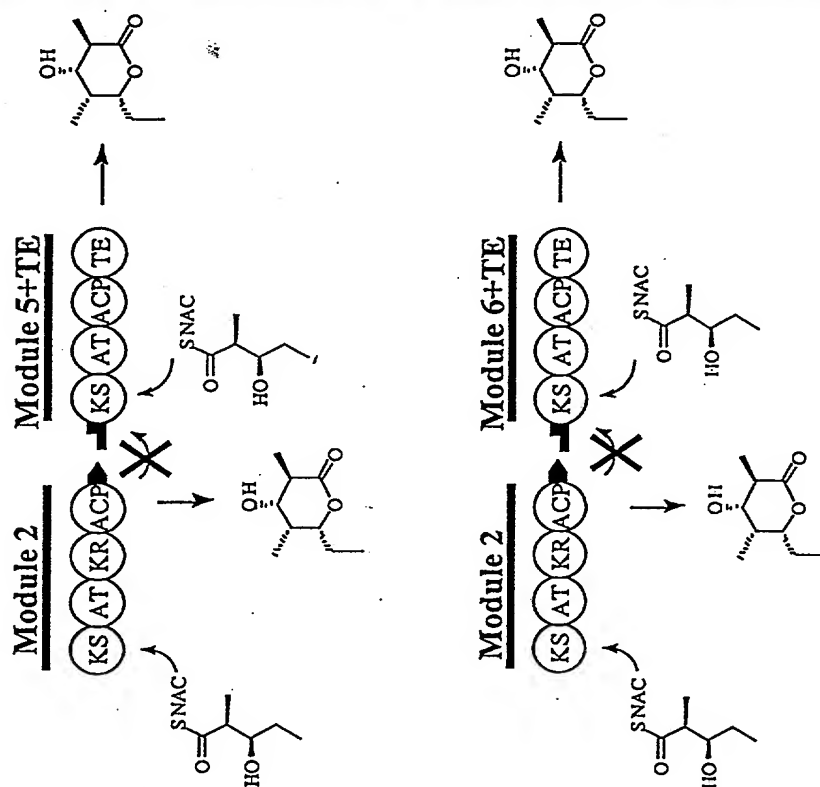
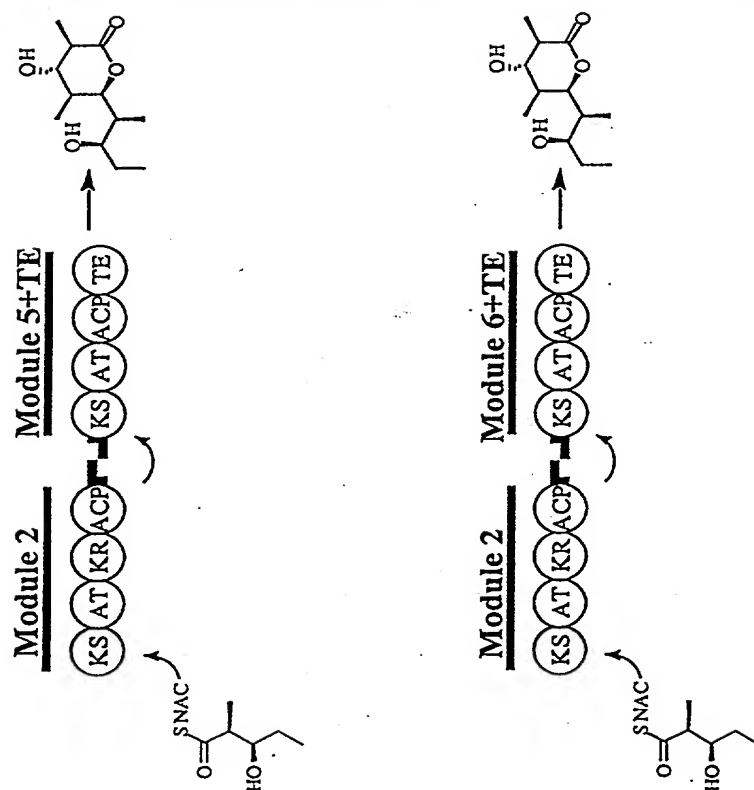


Figure 18

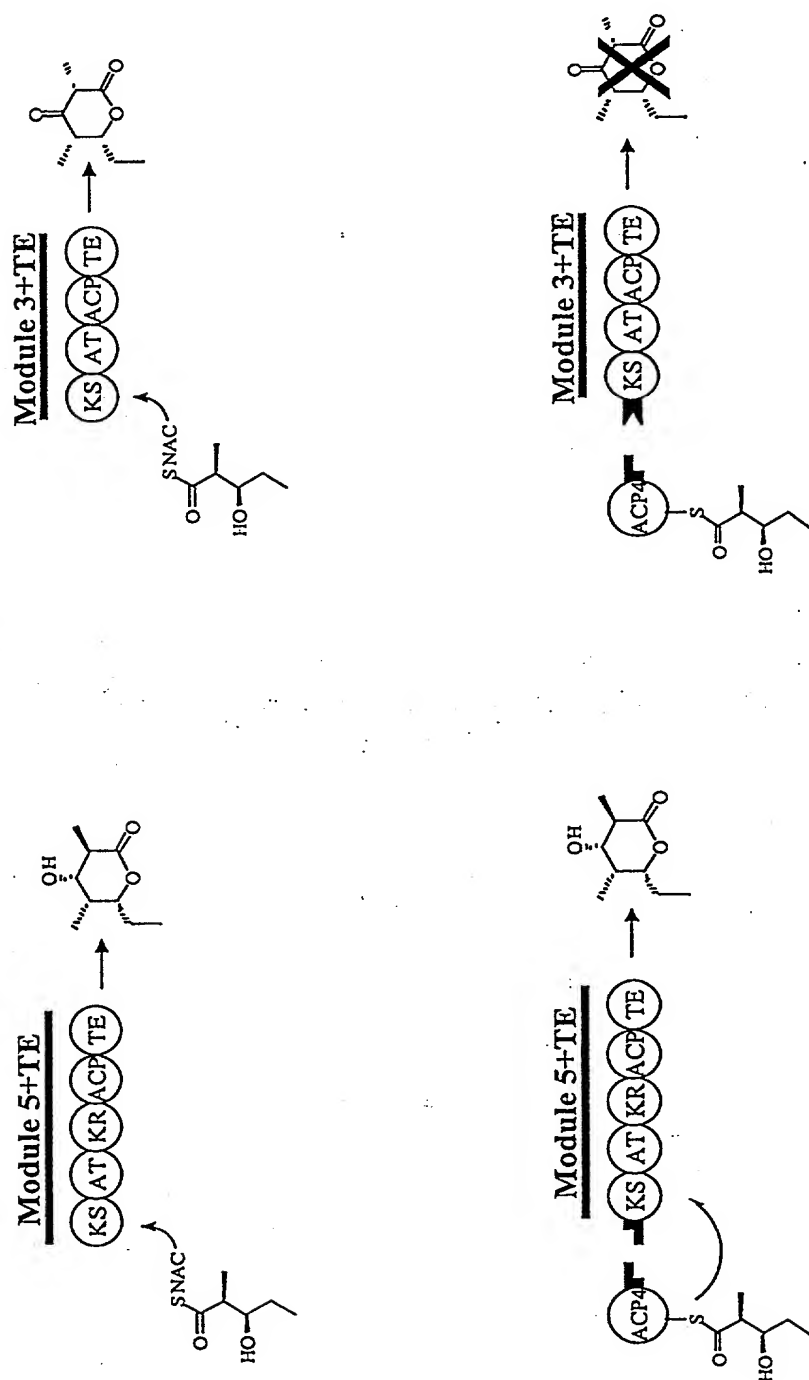


Figure 19



Figure 21

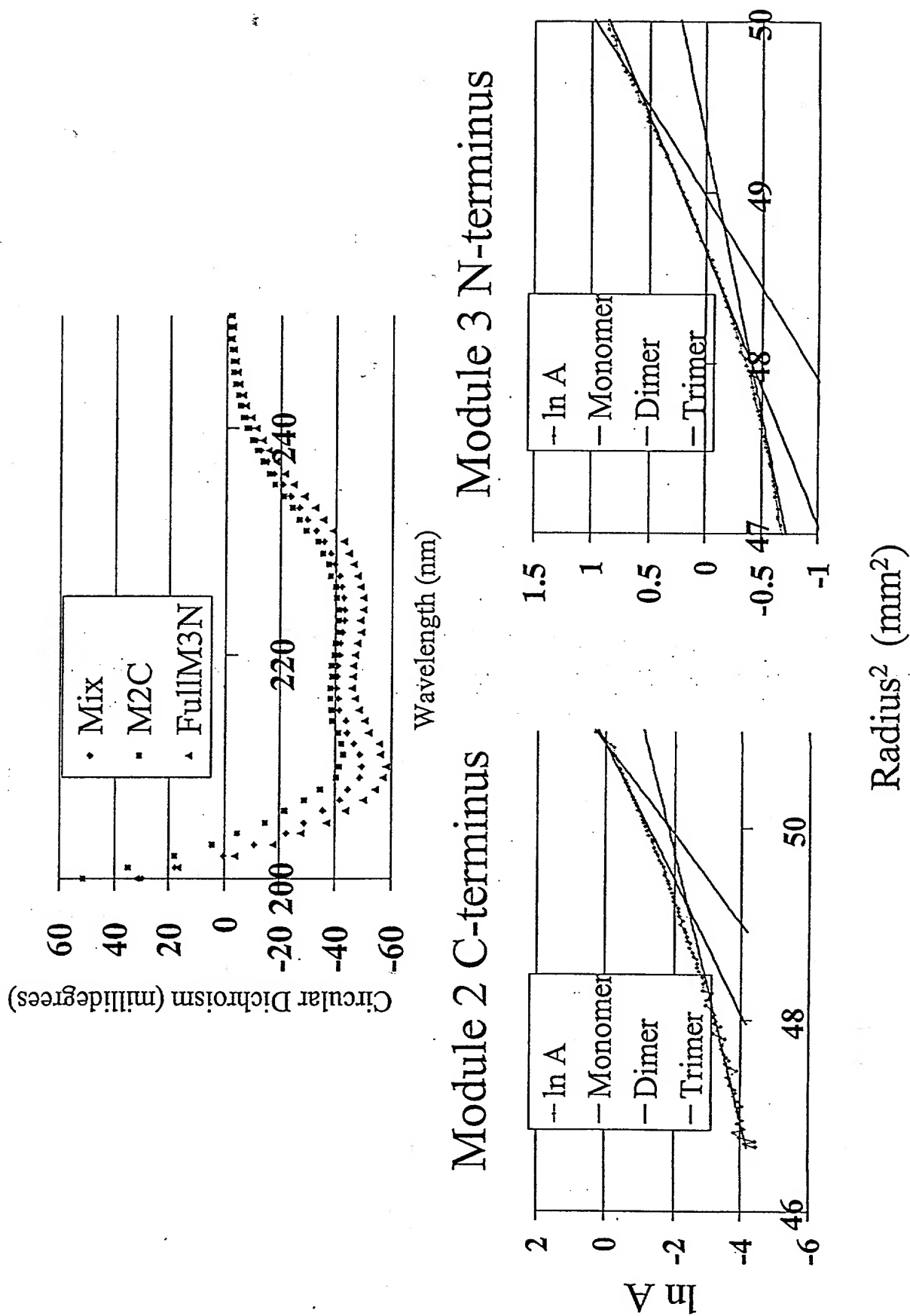


Figure 22

